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08/29/2000

Hon Wah Chin

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10/04/2006

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EXAMINER

LIN, KENNY S

ART UNIT

PAPER NUMBER

2152

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,254

Applicant(s)

CHIN, HON WAH

Examiner

Kenny Lin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 7 and 9-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 9-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1, 7 and 9-21 are presented for examination. Claims 2-6 and 8 are canceled.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/4/2006 has been entered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Regarding claim 1, the phrase "as having" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 7, 9-10, 13-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judd et al (Judd), US 5,465,251, in view of Saleh et al (Saleh), US 6,801,496.

7. Judd and Saleh were cited in the previous office action.

8. As per claim 1, Judd taught the invention as claimed including an address protocol for forwarding a message packet from a source node to a destination node along a sequence of communicatively coupled nodes functioning as a linear chain network (col.2, lines 26-31, col.5, lines 55-59; strings), the address protocol comprising:

- a. A relative source address field programmed with an initial value (0h) at the source node corresponding to a destination node that is a preselected number of nodes away from the source node along the linear chain network (col.2, lines 3-18, 32-41, col.6, lines 33-35, col.7, lines 64-67, col.8, lines 43-50);
- b. A relative destination address field containing a counter and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network (col.2, lines 3-18, 32-41, col.7, lines 51-67, col.6, lines 33-35, 38-41, 53-55, col.8, lines 43-50);
- c. Wherein the counter is decremented by a preselected step in value at each node the message packet is forwarded to along the chain network until the counter reaches the initial value, thereby indicating that the destination node has been

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reached (col.2, lines 3-18, 32-41, col.7, lines 55-63, col.8, lines 44-61; if Hi_digit = 0h; accept the frame);

- d. An identifier field containing an identifier to identify the message packet as having a relative address protocol (col.6, lines 14-15); and
- e. Wherein the destination node does not require address information in addition to the counter reaching the initial value to accept the message packet (col.2, lines 36-39).

9. Judd did not specifically teach that the counter is incremented in value. However, since Judd taught that the counter is programmed with the initial value and the counter is **modified** at each node (col.2, lines 3-18, 31-41), it would have been obvious to increment the counter as a method of modifying the counter especially since decrementing is simply incrementing negative values. Saleh taught to increment counters at each node (col.8, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Judd and Saleh because Saleh's teaching of setting the counter with a zero initial value and incrementing it at each node enables Judd's method to reach the same result by incrementing counter till it is equal to non-zero initial value instead of counting down to zero.

10. As per claim 14, Judd taught the invention as claimed including a method of sending a message packet along a portion of a network functioning as a linear chain network from a source node to a destination node using an address protocol having an identifier to identify the message packet as having a relative address protocol (col.2, lines 26-31, col.5, lines 55-59, col.6, lines 14-

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15), a relative source address field for storing an initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67), and a relative destination address field containing a counter and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network (col.2, lines 3-18, 32-41, col.7, lines 51-67, col.6, lines 33-35, 38-41, 53-55, col.8, lines 43-50), the method comprising the steps of:

- a. Selecting the initial value to be a function of a desired number of node hops along the linear chain network from the source node (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- b. Programming the relative source address field to have the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- c. Adjusting the counter by a preselected step in value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61); and
- d. Accepting the message packet at a destination node when the counter value reaches the initial value, without requiring address information in addition to the counter reaching the initial value to accept the message packet (col.2, lines 3-18, 32-41, col.7, lines 55-63, col.8, lines 44-61; if $Hi_digit = 0h$; accept the frame),
- e. Wherein the preselected step in value is chosen so that the counter reaches the initial value when the packet has completed the desired number of node hops (col.2, lines 3-18, 32-41, col.8, lines 44-61).

11. Judd did not specifically teach that adjusting the counter is to increment it. However, since Judd taught that the counter is programmed with the initial value and the counter is

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modified at each node (col.2, lines 3-18, 31-41), it would have been obvious to increment the counter as a method of modifying the counter especially since decrementing is simply incrementing negative values. Saleh taught to increment counters at each node (col.8, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Judd and Saleh because Saleh's teaching of setting the counter with a zero initial value and incrementing it at each node enables Judd's method to reach the same result by incrementing counter till it is equal to non-zero initial value instead of counting down to zero.

12. As per claim 18, Judd taught the invention as claimed including a method of sending a message packet along a chain network having regenerator nodes from a source node to a destination node using an address protocol having an identifier to identify the message packet as having a relative address protocol (col.2, lines 26-31, col.5, lines 55-59, col.6, lines 14-15), a relative source address for storing an initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67), and a relative destination address field containing a counter and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network (col.2, lines 3-18, 32-41, col.7, lines 51-67, col.6, lines 33-35, 38-41, 53-55, col.8, lines 43-50), the method comprising the steps of:

- a. Selecting the initial value to be a function of a desired number of node hops along the linear chain from the source node (col.2, lines 3-18, 32-41, col.7, lines 64-67);
- b. Adjusting the counter by a preselected step in value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61); and

- c. Accepting the message packet at a destination node when the counter value reaches the initial value, without requiring address information in addition to the counter reaching the trigger value to accept the message packet (col.2, lines 3-18, 32-41, col.7, lines 55-67, col.8, lines 44-61; if Hi_digit = 0h; accept the frame); and
- d. Wherein the preselected step in value is chosen so that the counter reaches the initial value when the packet has completed the desired number of node hops (col.2, lines 3-18, 32-41, col.8, lines 44-61).

13. Judd did not specifically teach that adjusting the counter is to increment it. However, since Judd taught that the counter is programmed with the initial value and the counter is **modified** at each node (col.2, lines 3-18, 31-41), it would have been obvious to increment the counter as a method of modifying the counter especially since decrementing is simply incrementing negative values. Saleh taught to increment counters at each node (col.8, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Judd and Saleh because Saleh's teaching of setting the counter with a zero initial value and incrementing it at each node enables Judd's method to reach the same result by incrementing counter till it is equal to non-zero initial value instead of counting down to zero.

14. As per claim 7, Judd and Saleh taught the invention substantially as claimed in claim 1. Judd further taught that the initial value is an integer having an absolute value equal to the

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desired number of node hops and the counter is changed by a step in value of one at each node (col.7, lines 64-67). Judd did not specifically teach that the change of the counter is an increment in value. However, since Judd taught that the counter is programmed with the initial value and the counter is **modified** at each node (col.2, lines 3-18, 31-41), it would have been obvious to increment the counter as a method of modifying the counter. Saleh taught to increment counters at each node (col.8, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Judd and Saleh because Saleh's teaching of setting the counter with a zero initial value and incrementing it at each node enables Judd's method to reach the same result by incrementing counter till it is equal to non-zero initial value instead of counting down to zero.

15. As per claim 9, Judd and Saleh taught the invention substantially as claimed in claim 7. Judd did not specifically teach that the counter is initially set to zero and the counter is counted up by one at each node hop until the initial value is reached. However, since Judd taught that the counter is programmed with the initial value and the counter is **modified** at each node (col.2, lines 3-18, 31-41), it would have been obvious to increment the counter as a method of modifying the counter. Saleh taught to increment counters at each node (col.8, lines 44-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Judd and Saleh because Saleh's teaching of setting the counter with a zero initial value and incrementing it at each node enables Judd's method to reach the same result by incrementing counter till it is equal to non-zero initial value instead of counting down to zero.

16. As per claim 10, Judd and Saleh taught the invention substantially as claimed in claim 1. Judd further taught that the initial value is a linear function of the desired number of node hops (col.7, lines 64-67).

17. As per claim 11, Judd and Saleh taught the invention substantially as claimed in claim 1. Judd further taught that wherein at least one node in the linear chain is a regenerator element (col.2, lines 31-39, col.8, 43-50).

18. As per claim 13, Judd and Saleh taught the invention substantially as claimed in claim 1. Judd further taught that the chain network comprises a portion of a ring network (col.2, lines 26-31, col.5, lines 61-67, col.6, lines 1; loop).

19. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Judd et al (Judd), US 5,465,251, and Saleh et al (Saleh), US 6,801,496, in view of "Official Notice".

20. As per claim 12, Judd and Saleh taught the invention substantially as claimed in claim 1. Judd and Saleh did not specifically teach that the chain network is a virtual chain network. Official Notice is taken that the limitations narrowed by this claim is considered obvious and furthermore a matter of design choice, since applicants have not disclosed that the claimed limitations solve any stated problem or are of any particular purpose and it appears that the invention would perform equally well without these claimed features. Therefore, it would have

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been obvious to one of ordinary skill in the art at the time the invention was made to efficiently utilize the claimed method in all “types of presenting chain network”. Official Notice is taken that it would have been obvious to implement Judd and Saleh’s teaching to all applicable network environments. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expand Judd’s teaching of using hop counters to transmit packets in suitable networks such as virtual network, ring network or other applicable network.

21. Claims 15-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judd and Saleh as applied to claims 14 and 18 above, and further in view of “Official Notice”.

22. As per claims 15 and 19, Judd and Saleh taught the invention substantially as claimed in claims 14 and 18. Judd further taught the message packet to comprise a status query message and further request the destination node to send a status message packet back to the source node (col.11, lines 15-19). Judd and Saleh did not specifically teach the message packet is sent back along the chain having a relative source address field and a counter. However, since Judd taught to use identification field and counter in the message packet, program initial values in hop counter, adjusting the counter by the preselected step in value at each node that the message packet is forwarded to, and accepting the message packet when the counter reaches the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67, col.8, lines 44-61) and Saleh taught to adjust the counting by increment the counter, it would be obvious to implement such teachings in the status message packet as well (destination node becomes initiator). Official Notice is taken that it would have been obvious to implement the same teaching of using counter and initial value for

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returning messages in Judd and Saleh's system (sending package to reverse direction). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Judd and Saleh's teachings of using identification field, counter, counter adjusting and packet accepting in not only the message packet sent from the source node, but also the status message packet sent from the destination node back to the source node as well.

23. As per claim 16, Judd and Saleh taught the invention substantially as claimed in claim 15. Judd further taught that wherein at least one node in the linear chain is a regenerator element (col.2, lines 31-39, col.8, 43-50).

24. As per claim 17, Judd and Saleh taught the invention substantially as claimed in claim 15. Judd further taught to:

- a. selecting a return message (col.11, lines 15-19);
- b. transmitting the return message in the direction to the source node (col.1, lines 15-19);
- c. incrementing the second counter by the preselected step in value at each node that the message packet is forwarded to (col.2, lines 3-18, 32-41, col.8, lines 44-61);
and
- d. accepting the return message packet at the source node when the second counter reaches the initial value (col.2, lines 3-18, 32-41, col.7, lines 64-67, col.8, lines 44-61).

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25. As per claim 20, Judd and Saleh taught the invention substantially as claimed in claim 19. Judd and Saleh did not specifically teach to send a plurality of the status query messages to a plurality of destination nodes, the destination nodes corresponding to different initial values indicating that the destination nodes are each a different number of node hops from the source node and to receive the status message packets from responding destination nodes; and determining the relative distance of responding nodes as a function of the initial value corresponding to each responding node, wherein a fault is isolated to a part of the network subsequent to the responding active node the greatest number of node hops from the source node. However, it would have been obvious to send a plurality of status query message to a plurality of destination nodes and to have the destination nodes to send status message back since Judd taught to send query message to a destination node (col.2, lines 6-9, col.11, lines 15-19) and to send acknowledgement message back to the source node (col.1, lines 15-19). Furthermore, it would have been obvious to use the initial value corresponding to nodes that are each a different number of node hops from the source node to determine the relative distance of them where network fault can be isolated subsequent to the farthest node away from the source node. Official Notice is taken that it would have been obvious to send a plurality of status query message to a plurality of destination nodes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the source node in Judd and Saleh's method to send multiple status query message to multiple destination nodes to obtain status message and determine relative distance of the nodes.

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26. As per claim 21, Judd and Saleh taught the invention substantially as claimed in claim 14.

Judd further taught the method to comprise the steps of:

- a. Sending a first status query message packet requesting a return status message from a destination node at least one node hope from the source node (col.11, lines 15-19);
- b. Sending at least one subsequent status query message packet requesting a return status message from another destination node corresponding to a different number of node hops from the source node and recording whether the return status message is received at the source node; (col.11, lines 15-19; with different destination).

27. Judd and Saleh did not specifically teach to detect a fault in a linear chain of regenerator nodes using the relative address protocol; and determine the node the greatest number of node hops from the source node replying to the status query message directed to it, wherein a fault is isolated to a portion of the chain network subsequent to the node the greatest number of node hops from the source node returning the corresponding status message. However, it would have been obvious to use the initial value corresponding to nodes that are each a different number of node hops from the source node to determine the node the greatest number of node hops from the source node where network fault can be isolated subsequent to it. Official Notice is taken that it is obvious that a fault may be detected when subsequent portion of the network of the node the greatest number of node hops from the source node is reached. It would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the source node in

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Judd and Saleh's method to send multiple status query message to multiple destination nodes to obtain status message and determine relative distance of the nodes and to detect faults when exceeds greatest number of node hops from the source node.

Response to Arguments

28. Applicant's arguments filed 8/4/2006 have been fully considered but they are not persuasive.

29. In the remark, applicant argued (1) Neither Judd nor Saleh teach or suggest the use of both a relative destination address field and a relative source address field nor a directional code corresponding to the port from which the message packet is sent to along the chain with a counter for counting the number of nodes that the message packet has encountered. (2) Judd's teaching of control field merely indicates a frame type and a sequence number but does not identify the message packet as having a relative address protocol.

30. Examiner traverse the argument that:

As to point (1), Judd taught to use an address field that includes the functions of applicant's claimed source address field and destination address field. Judd taught that the address field is programmed with an initial value (0h) at the source node, a counter (col.7, lines 55-67: hop count), and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network (col.6, lines 33-35, 38-46, 53-55: selecting channel). Since Judd taught to use one address field to include both of the claimed

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address field's functions, it is clear that Judd taught the claimed address fields, especially when the claims failed to define that the two address fields cannot be of the same field.

As to point (2), Judd taught to use a control field to indicate a frame type and a sequence number, where a frame type specifies a standard that defines the physical structure of the packet (admitted by the applicant in page 12 of the remark). Judd further taught that a frame consist of a sequence of at least 4 data bytes delimited at each end by a special protocol character known as a Flag. Although Judd did not specifically state that the control field identify the message packet as having a relative address protocol, it is well known in the art that the format of the packet frame depends on the type of address protocol used and that the control field identifies the frame type. This inherently identifies the relative address protocol used for framing the packet.

Therefore, having the control field identifying the frame type inherently identify the message packet **as having** a relative address protocol. NOTE: this limitation is not included in claims 14 or 18 as stated by the applicant.

Because Applicants have failed to challenge any of the Examiner's "Official Notices" stated in the previous office action in a proper and reasonably manner, they are now considered as admitted prior art. See MPEP 2144.03

Conclusion

31. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

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32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (571) 272-3968. The examiner can normally be reached on 8 AM to 5 PM Tue.-Fri. and every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ksl
September 22, 2006

